DATE OF LAST REVIEW: 02/2013
CIP CODE: 51.0908
SEMESTER: DEPARTMENTAL SYLLABUS
COURSE TITLE: CARDIOPULMONARY CARE I
COURSE NUMBER: RSCR0225
CREDIT HOURS: 4 credits
INSTRUCTOR: DEPARTMENTAL SYLLABUS
OFFICE LOCATION: DEPARTMENTAL SYLLABUS
OFFICE HOURS: DEPARTMENTAL SYLLABUS
TELEPHONE: DEPARTMENTAL SYLLABUS
EMAIL: DEPARTMENTAL SYLLABUS
KCKCC-issued emails accounts are the official means for electronically communicating with our students.

PREREQUISITES: Admission to the Respiratory Therapy Program, or permission of the instructor.

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, http://www.kckccbookstore.com, for the required texts for your particular class.

COURSE DESCRIPTION:
In this applications oriented class, students put lecture content and lab competencies to use on clinical rounds. Students become familiar with cardiopulmonary diseases and diagnostic symptoms. Bedside testing, patient monitoring, and pharmacologic interventions are key components of this course.

METHOD OF INSTRUCTION:
A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, learning experiences, and performances outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:
I. Pulmonary Mechanics
   A. ventilation versus respiration
   B. the role of the diaphragm
   C. diaphragmatic movements
   D. static compliance
   E. dynamic compliance
   F. pulmonary surfactant
G. atelectasis  
H. elastic tension  
I. passive dilation  
J. passive constriction  
K. tidal volume  
L. frequency  
M. I:E ratio  
N. deadspace  
O. surface tension  
P. resistance  

II. Respiratory Anatomy & Physiology  
A. structures of the upper airway  
   a. nose  
   b. sinuses  
   c. pharynx  
B. structures of the lower airway  
   a. tracheobronchial tree  
   b. lobule  
   c. alveoli  
   d. blood supply  
   e. surfactant  
   f. clearing mechanisms  
C. structures of the thorax  
   a. skeletal structures  
   b. muscles of ventilation  
D. respiratory physiology  
   a. respiratory neurons  
   b. pontine respiratory centers  
   c. cortical regulation  
   d. monitoring systems influencing the medulla  
   e. reflexes that influence ventilation  
   f. oxygen transport  
   g. oxyhemoglobin dissociation curve  
   h. PaO2 vs SpO2  

III. Cardiopulmonary Diseases/pathophysiology I  
A. asthma  
   a. intrinsic  
   b. extrinsic  
   c. classic characteristics  
   d. status asthmaticus  
   e. pathology of airway resistance  
   f. immune responses  
   g. Beta Blockade Theory  
   h. lab results  
   i. ABG progression  
   j. asthma treatments  
   k. course and prognosis  
B. bronchitis  
   a. Chronic Obstructive Pulmonary Disease (COPD)  
   b. two types of bronchitis  
   c. signs and symptoms  
   d. etiology
C. emphysema
   a. three forms
   b. etiology
   c. alpha I antitrypsin deficiency
   d. clinical manifestations
   e. “Pink Puffer”
   f. bulla
   g. acinus
   h. course and prognosis

D. pneumonia
   a. diagnostic factors
   b. lung structures effected
   c. types of pneumonia
   d. acuity
   e. sputum production
   f. host factors
   g. classic complaints
   h. breath sounds
   i. antibiotics

IV. Cardiopulmonary Pharmacology
   A. mucokinetics
   B. mucolytics
   C. sympathomimetics
      a. catecholamines
      b. catecholamine derivatives
      c. resorcinols
      d. saligenins
      e. pirbuterol
   D. parasympatholytics
   E. methylxanthines
   F. anticholinergics
   G. glucocorticoid steroids
   H. adrenergic receptor sites
   I. respiratory stimulants
   J. calculating drug dosages
   K. safe drug administration
   L. routes of drug administration
   M. desired effects versus side effects
   N. handling adverse reactions
   O. delivery devices
      a. metered dose inhalers
      b. space devices
      c. small volume nebulizers
      d. high efficiency nebulizers
      e. ultrasonic nebulizers

V. Cardiopulmonary Diagnostic Screening Tests
A. morbidity and mortality tables
B. wellness education
C. risk factors for pulmonary disease
D. risk factors for cardiac disease
E. patient interviews
F. patient medical histories
G. aerobic exercise
H. target heart rate
   a. monitoring during exercise
   b. recovery heart rate
I. nomograms of predicted values
J. peak expiratory flow rates
K. forced expiratory volumes
L. forced vital capacity
M. oximetry changes with activity
N. step testing

VI. Decision Making Tools
A. evidence based sources
B. charts and tables
C. graphs, flow diagrams, algorithms
D. collecting, analyzing, interpreting patient data

VII. Patient Assessment Technique
A. chest assessment
   a. inspection
   b. palpation
   c. percussion
   d. auscultation
B. external landmarks
C. tactile and vocal fremitus
D. breath sounds
E. heart sounds
F. cyanosis
G. vital sign changes
H. barrel chest
I. pursed lip breathing
J. cor pulmonale
K. accessory muscle use
L. cough production
M. digital clubbing
N. hemoptysis
O. retractions
P. SOAP notes
Q. care plans

VIII. Wellness and Health Education
A. chronic obstructive pulmonary disease (COPD)
   a. COPD causes
   b. medications
   c. oxygen in the home
   d. home care equipment
   e. exercise
   f. total body relaxation
   g. lifestyle changes
h. eating right for COPD
i. pneumonia vaccine
j. flu vaccine
B. asthma
   a. allergic triggers
   b. lung irritants
   c. weather conditions
   d. infections
   e. physical exertion
   f. excitement
   g. medications
   h. peak expiratory flow rate monitoring
C. tuberculosis
   a. spread of infection
   b. risk factors
   c. symptoms
   d. skin testing
   e. treatment
D. indoor air pollution
   a. carbon monoxide
      i. kerosene space heaters
      ii. fireplaces
      iii. second hand smoke
      iv. car fumes
   b. radon
   c. formaldehyde
   d. infections from humidifiers
   e. adequate air exchange and ventilation
E. outdoor air pollution
   a. lead emissions
   b. sulfur dioxide
   c. nitrogen oxides
   d. air pollution alerts
F. ozone pollution
   a. ozone layer
   b. chlorofluorocarbons
G. sleep apnea
   a. signs and symptoms
   b. testing
   c. sleep hygiene
IX. Smoking Cessation Teaching and Techniques
A. nicotine
B. addiction
C. absorption of nicotine
D. the smoking process
E. pharmacokinetics and metabolism
F. elimination of nicotine
G. toxic effects of nicotine
H. nicorette
I. nicotine patches
J. smoking cessation programs
K. lung cancer
EXPECTED LEARNER OUTCOMES:

A. The student will be able to relate lab values to respiratory symptoms.
B. The student will be able to relate diagnostic tests to respiratory function.
C. The student will be able to compare normal respiratory anatomy and physiology with lung problems.
D. The student will be able to assess respiratory status.
E. The student will be able to describe ways to instruct patients on disease prevention and wellness.
F. The student will be able to describe the effects of respiratory medications.

COURSE COMPETENCIES:

The student will be able to relate lab values to respiratory symptoms.
1. The student will be able to apply hemoglobin/hematocrit lab values to evaluate patient scenarios.
2. The student will be able to apply white blood cell count lab values to evaluate patient scenarios.
3. The student will be able to apply red blood cell count values to evaluate patient scenarios.
4. The student will be able to apply sputum culture and sensitivity values to evaluate patient scenarios.
5. The student will be able to apply acid fast bacillus values to evaluate patient scenarios.
6. The student will be able to apply gram stain values to evaluate patient scenarios.
7. The student will be able to apply differential count values to evaluate patient scenarios.

The student will be able to relate diagnostic tests to respiratory function.
8. The student will be able to apply lung volume values to evaluate patient scenarios.
9. The student will be able to apply lung capacities values to evaluate patient scenarios.
10. The student will be able to apply airway flowrates values to evaluate patient scenarios.
11. The student will be able to apply lung compliance values to evaluate patient scenarios.
12. The student will be able to apply lung elastance values to evaluate patient scenarios.

The student will be able to compare normal respiratory anatomy and physiology with lung problems.
13. The student will be able to apply chest x-ray data values to evaluate patient scenarios.
14. The student will be able to apply chest x-ray values to evaluate patient scenarios.
15. The student will be able to calculate data from pulmonary mechanics.
16. The student will be able to calculate tidal volume data.
17. The student will be able to calculate frequency of breathing data.
18. The student will be able to calculate I:E ratio data.
19. The student will be able to calculate minute volume data.
20. The student will be able to calculate inspiratory capacity data.

The student will be able to assess respiratory status.
21. The student will be able to calculate oxygen content data.
22. The student will be able to calculate oxygen delivery data.
23. The student will be able to calculate alveolar oxygen data.
24. The student will be able to calculate shunt data.
25. The student will be able to calculate respiratory quotient data.
26. The student will be able to calculate cardiac output data.

_The student will be able to describe ways to instruct patients on disease prevention and wellness._
27. The student will be able to differentiate major lung diseases.
28. The student will be able to describe asthma.
29. The student will be able to describe chronic bronchitis.
30. The student will be able to describe emphysema.
31. The student will be able to describe pneumonia.
32. The student will be able to describe cystic fibrosis.
33. The student will be able to describe lung restriction.

_The student will be able to describe the effects of respiratory medications._
34. The student will be able to interpret patient response to pharmacologic intervention.
35. The student will be able to identify adrenergic drugs.
36. The student will be able to identify methylxanthine drugs.
37. The student will be able to identify anticholinergic drugs.
38. The student will be able to identify corticosteroid drugs.

**ASSESSMENT OF LEARNER OUTCOMES:** Students progress is evaluated by means that include, but not limited to, exams, written assignments, and class participation.

**SPECIAL NOTES:**
This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college’s policy on non-discrimination be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact Director of the Academic Resource Center at 913-288-7670.